OIPE

RAW SEQUENCE LISTING   DATE: 07/23/2002
PATENT APPLICATION: US/10/098,602A   TIME: 14:33:23

        Input Set : A:\12557-004001.txt
        Output Set: N:\CRF3\07232002\J098602A.raw

```
  4  <110> APPLICANT: Kloek, Andrew P.
  5         Williams, Deryck Jeremy
  6         Salmon, Brandy
  8  <120> TITLE OF INVENTION: NEMATODE GS-LIKE SEQUENCES
 10  <130> FILE REFERENCE: 12557-004001
 12  <140> CURRENT APPLICATION NUMBER: US 10/098,602A
 13  <141> CURRENT FILING DATE: 2002-03-15
 15  <150> PRIOR APPLICATION NUMBER: US 60/276,621
 16  <151> PRIOR FILING DATE: 2001-03-16
 18  <160> NUMBER OF SEQ ID NOS: 9
 20  <170> SOFTWARE: FastSEQ for Windows Version 4.0
 22  <210> SEQ ID NO: 1
 23  <211> LENGTH: 1471
 24  <212> TYPE: DNA
 25  <213> ORGANISM: Meloidogyne incognita
 27  <220> FEATURE:
 28  <221> NAME/KEY: CDS
 29  <222> LOCATION: (34)...(1395)
 31  <400> SEQUENCE: 1
 32  tgtataataa agcttcataa tataaaattt taa atg acc atc act tat gat gaa      54
 33                                          Met Thr Ile Thr Tyr Asp Glu
 34                                           1                   5
 36  cta aat aat ttg att aga aat gga aaa att gac acg gta gtt ttg gca     102
 37  Leu Asn Asn Leu Ile Arg Asn Gly Lys Ile Asp Thr Val Val Leu Ala
 38          10              15                  20
 40  tgc gtc gac atg caa ggc cgg ctg atg ggc aag aga tta act ggg cgt     150
 41  Cys Val Asp Met Gln Gly Arg Leu Met Gly Lys Arg Leu Thr Gly Arg
 42          25              30                  35
 44  cat ttt tta gga ttg gat caa aag aag att agc att agc acg ttt gta     198
 45  His Phe Leu Gly Leu Asp Gln Lys Lys Ile Ser Ile Ser Thr Phe Val
 46   40              45                  50                  55
 48  tat gcg gta act ata gaa ggc atc gct ggc gga ggt tat gag atc tca     246
 49  Tyr Ala Val Thr Ile Glu Gly Ile Ala Gly Gly Gly Tyr Glu Ile Ser
 50              60                  65                  70
 52  agt gta gac aca ggt tat agt gat tgt cat ctc tgt gca gat ttg aat     294
 53  Ser Val Asp Thr Gly Tyr Ser Asp Cys His Leu Cys Ala Asp Leu Asn
 54              75                  80                  85
 56  tcc ctt cat tta ctc ccg tgg tca gaa ggc gct gta ttg gca att tcc     342
 57  Ser Leu His Leu Leu Pro Trp Ser Glu Gly Ala Val Leu Ala Ile Ser
 58          90                  95                  100
 60  aat cct cat aat ttc gtt act tct gag cca ttg ttc tgt tct cct cga     390
 61  Asn Pro His Asn Phe Val Thr Ser Glu Pro Leu Phe Cys Ser Pro Arg
 62          105                 110                 115
```

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```
64  gta ata ctc atg cag caa att gag cgc ctg gct aat cta aag ctt aaa      438
65  Val Ile Leu Met Gln Gln Ile Glu Arg Leu Ala Asn Leu Lys Leu Lys
66  120                 125                 130                 135
68  ggc ctt ttt gct tct gaa cta gaa ttt aat ctt ttc aac gaa act tat      486
69  Gly Leu Phe Ala Ser Glu Leu Glu Phe Asn Leu Phe Asn Glu Thr Tyr
70                      140                 145                 150
72  aag agt gcc agc caa aag cat tgg aaa aat tta aaa acc gcg cag cct      534
73  Lys Ser Ala Ser Gln Lys His Trp Lys Asn Leu Lys Thr Ala Gln Pro
74                      155                 160                 165
76  cat cat caa tgg atg aat att agt gca agt agt ggg att gaa act ttt      582
77  His His Gln Trp Met Asn Ile Ser Ala Ser Ser Gly Ile Glu Thr Phe
78                      170                 175                 180
80  atg cgt tct gtg cgt aat aaa tta gaa gaa gcc ggt att ttg atg gag      630
81  Met Arg Ser Val Arg Asn Lys Leu Glu Glu Ala Gly Ile Leu Met Glu
82          185                 190                 195
84  gcg aca cat ccc gaa ttt tta cct agt cag cat gaa ctt aat ttt gta      678
85  Ala Thr His Pro Glu Phe Leu Pro Ser Gln His Glu Leu Asn Phe Val
86  200                 205                 210                 215
88  cca gcc gat cct cta aca atg gca gat cgt cat att att gca aaa cat      726
89  Pro Ala Asp Pro Leu Thr Met Ala Asp Arg His Ile Ile Ala Lys His
90                      220                 225                 230
92  gga gtt cgc gaa atg gca gaa cag tct gga atg gtt gca act ttt atg      774
93  Gly Val Arg Glu Met Ala Glu Gln Ser Gly Met Val Ala Thr Phe Met
94                      235                 240                 245
96  gct aaa ttg agt tca act gcg ctt ggt aat gcc tgc cat att cat atg      822
97  Ala Lys Leu Ser Ser Thr Ala Leu Gly Asn Ala Cys His Ile His Met
98              250                 255                 260
100 tca ctt caa gat gca gaa aca gaa aaa aat gca ttt tat gat caa aac      870
101 Ser Leu Gln Asp Ala Glu Thr Glu Lys Asn Ala Phe Tyr Asp Gln Asn
102         265                 270                 275
104 gat gaa tat gga atg tca acc tta gct cgt aat tgg att gct gga tta      918
105 Asp Glu Tyr Gly Met Ser Thr Leu Ala Arg Asn Trp Ile Ala Gly Leu
106 280                 285                 290                 295
108 ttg aaa tac gta cct gaa gcg act tat ttc ttt gca tct tac atc aac      966
109 Leu Lys Tyr Val Pro Glu Ala Thr Tyr Phe Phe Ala Ser Tyr Ile Asn
110                 300                 305                 310
112 tcg tac aaa aga ctt caa ccg ctt act ttt gcg cca aca aaa tgt tgt     1014
113 Ser Tyr Lys Arg Leu Gln Pro Leu Thr Phe Ala Pro Thr Lys Cys Cys
114                 315                 320                 325
116 tgg gca att gac aac cga aca agc gcc ttt cga ctt tgt aat tca aaa     1062
117 Trp Ala Ile Asp Asn Arg Thr Ser Ala Phe Arg Leu Cys Asn Ser Lys
118             330                 335                 340
120 tcc gag gga att aat gtt gag ctg cgt att ggt ggc gct gat ttg aac     1110
121 Ser Glu Gly Ile Asn Val Glu Leu Arg Ile Gly Gly Ala Asp Leu Asn
122         345                 350                 355
124 cct tat tta gct ttt tcc gca atc ata gct gca gga att agc ggt ata     1158
125 Pro Tyr Leu Ala Phe Ser Ala Ile Ile Ala Ala Gly Ile Ser Gly Ile
126 360                 365                 370                 375
128 gaa gaa aag ctt gaa ctt ccc cct cct gca tct ggc aat gtt tac aat     1206
```

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Input Set : A:\12557-004001.txt
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```
129 Glu Glu Lys Leu Glu Leu Pro Pro Pro Ala Ser Gly Asn Val Tyr Asn
130         380             385             390
132 gat aag gaa tta cct gaa ttt cct aat tcc tta caa aat gct aca cat    1254
133 Asp Lys Glu Leu Pro Glu Phe Pro Asn Ser Leu Gln Asn Ala Thr His
134         395             400             405
136 ctt cta aaa gaa tcg aaa atg ctg aat aaa aca ttc ggg gag aag ttg    1302
137 Leu Leu Lys Glu Ser Lys Met Leu Asn Lys Thr Phe Gly Glu Lys Leu
138         410             415             420
140 att cta cat tat gta aac gct gct aat gtt gag att aat gaa ttt tca    1350
141 Ile Leu His Tyr Val Asn Ala Ala Asn Val Glu Ile Asn Glu Phe Ser
142     425             430             435
144 aaa caa gtt act gac tgg gag ctt aat caa gga ttt aat aga tat        1395
145 Lys Gln Val Thr Asp Trp Glu Leu Asn Gln Gly Phe Asn Arg Tyr
146 440             445             450
148 taatatttta atgcttatgt agataacaat caaaaatata atctttaaat acataattaa  1455
149 aaaaaaaaaa aaaaa                                                    1471
151 <210> SEQ ID NO: 2
152 <211> LENGTH: 454
153 <212> TYPE: PRT
154 <213> ORGANISM: Meloidogyne incognita
156 <400> SEQUENCE: 2
157 Met Thr Ile Thr Tyr Asp Glu Leu Asn Asn Leu Ile Arg Asn Gly Lys
158   1           5               10              15
159 Ile Asp Thr Val Val Leu Ala Cys Val Asp Met Gln Gly Arg Leu Met
160         20              25              30
161 Gly Lys Arg Leu Thr Gly Arg His Phe Leu Gly Leu Asp Gln Lys Lys
162         35              40              45
163 Ile Ser Ile Ser Thr Phe Val Tyr Ala Val Thr Ile Glu Gly Ile Ala
164     50              55              60
165 Gly Gly Gly Tyr Glu Ile Ser Ser Val Asp Thr Gly Tyr Ser Asp Cys
166 65              70              75              80
167 His Leu Cys Ala Asp Leu Asn Ser Leu His Leu Leu Pro Trp Ser Glu
168             85              90              95
169 Gly Ala Val Leu Ala Ile Ser Asn Pro His Asn Phe Val Thr Ser Glu
170         100             105             110
171 Pro Leu Phe Cys Ser Pro Arg Val Ile Leu Met Gln Gln Ile Glu Arg
172         115             120             125
173 Leu Ala Asn Leu Lys Leu Lys Gly Leu Phe Ala Ser Glu Leu Glu Phe
174     130             135             140
175 Asn Leu Phe Asn Glu Thr Tyr Lys Ser Ala Ser Gln Lys His Trp Lys
176 145             150             155             160
177 Asn Leu Lys Thr Ala Gln Pro His His Gln Trp Met Asn Ile Ser Ala
178             165             170             175
179 Ser Ser Gly Ile Glu Thr Phe Met Arg Ser Val Arg Asn Lys Leu Glu
180         180             185             190
181 Glu Ala Gly Ile Leu Met Glu Ala Thr His Pro Glu Phe Leu Pro Ser
182         195             200             205
183 Gln His Glu Leu Asn Phe Val Pro Ala Asp Pro Leu Thr Met Ala Asp
184     210             215             220
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RAW SEQUENCE LISTING   DATE: 07/23/2002
PATENT APPLICATION: US/10/098,602A   TIME: 14:33:23

Input Set : A:\12557-004001.txt
Output Set: N:\CRF3\07232002\J098602A.raw

```
185 Arg His Ile Ile Ala Lys His Gly Val Arg Glu Met Ala Glu Gln Ser
186 225             230             235             240
187 Gly Met Val Ala Thr Phe Met Ala Lys Leu Ser Ser Thr Ala Leu Gly
188             245             250             255
189 Asn Ala Cys His Ile His Met Ser Leu Gln Asp Ala Glu Thr Glu Lys
190             260             265             270
191 Asn Ala Phe Tyr Asp Gln Asn Asp Glu Tyr Gly Met Ser Thr Leu Ala
192         275             280             285
193 Arg Asn Trp Ile Ala Gly Leu Leu Lys Tyr Val Pro Glu Ala Thr Tyr
194     290             295             300
195 Phe Phe Ala Ser Tyr Ile Asn Ser Tyr Lys Arg Leu Gln Pro Leu Thr
196 305             310             315             320
197 Phe Ala Pro Thr Lys Cys Cys Trp Ala Ile Asp Asn Arg Thr Ser Ala
198             325             330             335
199 Phe Arg Leu Cys Asn Ser Lys Ser Glu Gly Ile Asn Val Glu Leu Arg
200             340             345             350
201 Ile Gly Gly Ala Asp Leu Asn Pro Tyr Leu Ala Phe Ser Ala Ile Ile
202         355             360             365
203 Ala Ala Gly Ile Ser Gly Ile Glu Glu Lys Leu Glu Leu Pro Pro Pro
204     370             375             380
205 Ala Ser Gly Asn Val Tyr Asn Asp Lys Glu Leu Pro Glu Phe Pro Asn
206 385             390             395             400
207 Ser Leu Gln Asn Ala Thr His Leu Leu Lys Glu Ser Lys Met Leu Asn
208             405             410             415
209 Lys Thr Phe Gly Glu Lys Leu Ile Leu His Tyr Val Asn Ala Ala Asn
210             420             425             430
211 Val Glu Ile Asn Glu Phe Ser Lys Gln Val Thr Asp Trp Glu Leu Asn
212     435             440             445
213 Gln Gly Phe Asn Arg Tyr
214     450
216 <210> SEQ ID NO: 3
217 <211> LENGTH: 1362
218 <212> TYPE: DNA
219 <213> ORGANISM: Meloidogyne incognita
221 <400> SEQUENCE: 3
222 atgaccatca cttatgatga actaaataat ttgattagaa atggaaaaat tgacacggta    60
223 gttttggcat gcgtcgacat gcaaggccgg ctgatgggca agagattaac tgggcgtcat   120
224 tttttaggat tggatcaaaa gaagattagc attagcacgt ttgtatatgc ggtaactata   180
225 gaaggcatcg ctggcggagg ttatgagatc tcaagtgtag acacaggtta tagtgattgt   240
226 catctctgtg cagatttgaa ttcccttcat ttactcccgt ggtcagaagg cgctgtattg   300
227 gcaatttcca atcctcataa tttcgttact tctgagccat tgttctgttc tcctcgagta   360
228 atactcatgc agcaaattga gcgcctggct aatctaaagc ttaaaggcct ttttgcttct   420
229 gaactagaat ttaatctttt caacgaaact tataagagtg ccagccaaaa gcattggaaa   480
230 aatttaaaaa ccgcgcagcc tcatcatcaa tggatgaata ttagtgcaag tagtgggatt   540
231 gaaacttta tgcgttctgt gcgtaataaa ttagaagaag ccggtatttt gatggaggcg   600
232 acacatcccg aatttttacc tagtcagcat gaacttaatt ttgtaccagc cgatcctcta   660
233 acaatggcag atcgtcatat tattgcaaaa catggagttc gcgaaatggc agaacagtct   720
234 gggatggttg caactttat ggctaaattg agttcaactg cgcttggtaa tgcctgccat   780
235 attcatatgt cacttcaaga tgcagaaaca gaaaaaaatg cattttatga tcaaaacgat   840
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RAW SEQUENCE LISTING   DATE: 07/23/2002
PATENT APPLICATION: US/10/098,602A   TIME: 14:33:23

Input Set : A:\12557-004001.txt
Output Set: N:\CRF3\07232002\J098602A.raw

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236 gaatatggaa tgtcaacctt agctcgtaat tggattgctg gattattgaa atacgtacct    900
237 gaagcgactt atttctttgc atcttacatc aactcgtaca aaagacttca accgcttact    960
238 tttgcgccaa caaaatgttg ttgggcaatt gacaaccgaa caagcgcctt tcgactttgt   1020
239 aattcaaaat ccgagggaat taatgttgag ctgcgtattg gtggcgctga tttgaaccct   1080
240 tatttagctt tttccgcaat catagctgca ggaattagcg gtatagaaga aaagcttgaa   1140
241 cttccccctc ctgcatctgg caatgtttac aatgataagg aattacctga atttcctaat   1200
242 tccttacaaa atgctacaca tcttctaaaa gaatcgaaaa tgctgaataa aacattcggg   1260
243 gagaagttga ttctacatta tgtaaacgct gctaatgttg agattaatga attttcaaaa   1320
244 caagttactg actgggagct taatcaagga tttaatagat at                      1362
246 <210> SEQ ID NO: 4
247 <211> LENGTH: 457
248 <212> TYPE: PRT
249 <213> ORGANISM: Mycobacterium tuberculosis
251 <400> SEQUENCE: 4
252 Met Thr Gly Pro Gly Ser Pro Pro Leu Ala Trp Thr Glu Leu Glu Arg
253 1               5                   10                  15
254 Leu Val Ala Ala Gly Asp Val Asp Thr Val Ile Val Ala Phe Thr Asp
255             20                  25                  30
256 Met Gln Gly Arg Leu Ala Gly Lys Arg Ile Ser Gly Arg His Phe Val
257         35                  40                  45
258 Asp Asp Ile Ala Thr Arg Gly Val Glu Cys Cys Ser Tyr Leu Leu Ala
259     50                  55                  60
260 Val Asp Val Asp Leu Asn Thr Val Pro Gly Tyr Ala Met Ala Ser Trp
261 65                  70                  75                  80
262 Asp Thr Gly Tyr Gly Asp Met Val Met Thr Pro Asp Leu Ser Thr Leu
263                 85                  90                  95
264 Arg Leu Ile Pro Trp Leu Pro Gly Thr Ala Leu Val Ile Ala Asp Leu
265             100                 105                 110
266 Val Trp Ala Asp Gly Ser Glu Val Ala Val Ser Pro Arg Ser Ile Leu
267         115                 120                 125
268 Arg Arg Gln Leu Asp Arg Leu Lys Ala Arg Gly Leu Val Ala Asp Val
269     130                 135                 140
270 Ala Thr Glu Leu Glu Phe Ile Val Phe Asp Gln Pro Tyr Arg Gln Ala
271 145                 150                 155                 160
272 Trp Ala Ser Gly Tyr Arg Gly Leu Thr Pro Ala Ser Asp Tyr Asn Ile
273                 165                 170                 175
274 Asp Tyr Ala Ile Leu Ala Ser Ser Arg Met Glu Pro Leu Leu Arg Asp
275             180                 185                 190
276 Ile Arg Leu Gly Met Ala Gly Ala Gly Leu Arg Phe Glu Ala Val Lys
277         195                 200                 205
278 Gly Glu Cys Asn Met Gly Gln Gln Glu Ile Gly Phe Arg Tyr Asp Glu
279     210                 215                 220
280 Ala Leu Val Thr Cys Asp Asn His Ala Ile Tyr Lys Asn Gly Ala Lys
281 225                 230                 235                 240
282 Glu Ile Ala Asp Gln His Gly Lys Ser Leu Thr Phe Met Ala Lys Tyr
283             245                 250                 255
284 Asp Glu Arg Glu Gly Asn Ser Cys His Ile His Val Ser Leu Arg Gly
285             260                 265                 270
286 Thr Asp Gly Ser Ala Val Phe Ala Asp Ser Asn Gly Pro His Gly Met
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VERIFICATION SUMMARY   DATE: 07/23/2002
PATENT APPLICATION: **US/10/098,602A**   TIME: 14:33:24

Input Set : **A:\12557-004001.txt**
Output Set: **N:\CRF3\07232002\J098602A.raw**